

SEQUENCE LISTING

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<120> CYSTINE KNOT GROWTH FACTOR MUTANTS

<130> UOFMD.003C1

<150> PCT/US99/05908

<151> 1999-03-19

<150> PCT/US98/19772

<151> 1998-09-22

<160> 41

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 93

<212> PRT

<213> HOMO SAPIEN

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Pro	Phe	Phe	Ser	Gln	Pro	Gly	Ala	Pro	Ile	Leu	Gln	Cys	Met	Gly	Cys
			20					25					30		
Cys	Phe	Ser	Arg	Ala	Tyr	Pro	Thr	Pro	Leu	Arg	Ser	Lys	Lys	Thr	Met
		35					40					45			
Leu	Val	Gln	Lys	Asn	Val	Thr	Ser	Glu	Ser	Thr	Cys	Cys	Val	Ala	Lys
	50					55					60				
Ser	Tyr	Asn	Arg	Val	Thr	Val	Met	Gly	Gly	Phe	Lys	Val	Glu	Asn	His
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Thr	Ala	Cys	His	Cys	Ser	Thr	Cys	Tyr	Tyr	His	Lys	Ser			
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<212> PRT

<213> HOMO SAPIEN

<400> 2

Pro	Phe	Cys	Ile	Pro	Thr	Glu	Tyr	Thr	Met	His	Ile	Glu	Arg	Arg	Glu
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Cys	Ala	Tyr	Cys	Leu	Thr	Ile	Asn	Thr	Thr	Ile	Cys	Ala	Gly	Tyr	Cys
			20					25					30		
Met	Thr	Arg	Asp	Ile	Asn	Gly	Lys	Leu	Phe	Leu	Pro	Lys	Tyr	Ala	Leu
		35				40						45			
Ser	Gln	Asp	Val	Cys	Thr	Tyr	Arg	Asp	Phe	Ile	Tyr	Arg	Thr	Val	Glu
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Ile	Pro	Gly	Cys	Pro	Leu	His	Val	Ala	Pro	Tyr	Phe	Ser	Tyr	Pro	Val

50		55		60
Lys Asn Gly Cys Arg Gly Ile Asp Asp Arg His Trp Asn Ser Gln Cys				
65		70		75
Lys Thr Ser Gln Thr Tyr Val Arg Ala Ser Leu Thr Glu Asn Asn Lys				
	85		90	
Leu Val Gly Trp Arg Trp Ile Arg Ile Asp Thr Ser Cys Val Cys Ala				
	100		105	110
Leu Ser Arg Lys Ile Gly Arg Thr				
	115		120	

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Pro Gly Val Ser Glu Thr Ala Pro Ala Ser Arg Arg Gly Glu Leu Ala
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Val Cys Asp Ala Val Ser Gly Trp Val Thr Asp Arg Arg Thr Ala Val
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Asp Leu Arg Gly Arg Glu Val Glu Val Leu Gly Glu Val Pro Ala Ala
35 40 45
Gly Gly Ser Pro Leu Arg Gln Tyr Phe Phe Glu Thr Arg Cys Lys Ala
50 55 60
Asp Asn Ala Glu Glu Gly Gly Pro Gly Ala Gly Gly Gly Cys Arg
65 70 75 80
Gly Val Asp Arg Arg His Trp Val Ser Glu Cys Lys Ala Lys Gln Ser
85 90 95
Tyr Val Arg Ala Leu Thr Ala Asp Ala Gln Gly Arg Val Gly Trp Arg
100 105 110
Trp Ile Arg Ile Asp Thr Ala Cys Val Cys Thr Leu Leu Ser Arg Thr
115 120 125
Gly Arg Ala
130

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 <213> HOMO SAPIEN

<400> 13
Pro Ala Leu Asp Thr Asn Tyr Cys Phe Ser Ser Thr Glu Lys Asn Cys
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Cys Val Arg Gln Leu Tyr Ile Asp Phe Arg Lys Asp Leu Gly Trp Lys
20 25 30
Trp Ile His Glu Pro Lys Gly Tyr His Ala Asn Phe Cys Leu Gly Pro
35 40 45
Cys Pro Tyr Ile Trp Ser Leu Asp Thr Gln Tyr Ser Lys Val Leu Ala
50 55 60
Leu Tyr Asn Gln His Asn Pro Gly Ala Ser Ala Ala Pro Cys Cys Val
65 70 75 80
Pro Gln Ala Leu Glu Pro Leu Pro Ile Val Tyr Tyr Val Gly Arg Lys
85 90 95
Pro Lys Val Glu Gln Leu Ser Asn Met Ile Val Arg Ser Cys Lys Cys
100 105 110

Ser

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<213> HOMO SAPIEN

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Pro Ala Leu Asp Ala Ala Tyr Cys Phe Arg Asn Val Gln Asp Asn Cys
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Cys Leu Arg Pro Leu Tyr Ile Asp Phe Lys Arg Asp Leu Gly Trp Lys
20 25 30
Trp Ile His Glu Pro Lys Gly Tyr Asn Ala Asn Phe Cys Ala Gly Ala
35 40 45
Cys Pro Tyr Leu Trp Ser Ser Asp Thr Gln His Ser Arg Val Leu Ser
50 55 60
Leu Tyr Asn Thr Ile Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val
65 70 75 80
Ser Gln Asp Leu Glu Pro Leu Thr Ile Leu Tyr Tyr Ile Gly Lys Thr
85 90 95
Pro Lys Ile Glu Gln Leu Ser Asn Met Ile Val Lys Ser Cys Lys Cys
100 105 110

Ser

<210> 15
<211> 113
<212> PRT
<213> HOMO SAPIEN

<400> 15
Pro Ala Leu Asp Thr Asn Tyr Cys Phe Arg Asn Leu Glu Glu Asn Cys
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Cys Val Arg Pro Leu Tyr Ile Asp Phe Arg Gln Asp Leu Gly Trp Lys
20 25 30
Trp Val His Glu Pro Lys Gly Tyr Tyr Ala Asn Phe Cys Ser Gly Pro
35 40 45
Cys Pro Tyr Leu Arg Ser Ala Asp Thr Thr His Ser Thr Val Leu Gly
50 55 60
Leu Tyr Asn Thr Leu Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val
65 70 75 80
Pro Gln Asp Leu Glu Pro Leu Thr Ile Leu Tyr Tyr Val Gly Arg Thr
85 90 95
Pro Lys Val Glu Gln Leu Ser Asn Met Val Val Lys Ser Cys Lys Cys
100 105 110

Ser

<210> 16
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<212> PRT
<213> HOMO SAPIEN

Questions are asked about the following:

Questions are asked about the following:

Questions are asked about the following:

[illegible]

Questions are asked about the following:

Questions are asked about the following:

[illegible]

Pro Met Gln Arg Trp Lys Ala Ala Ala Leu Ala Ser Val Leu Cys Ser
 1 5 10 15
 Ser Val Leu Ser Ile Trp Met Cys Arg Glu Gly Leu Leu Leu Ser His
 20 25 30
 Arg Leu Gly Pro Ala Leu Val Pro Leu His Arg Leu Pro Arg Thr Leu
 35 40 45
 Asp Ala Arg Ile Ala Arg Leu Ala Gln Tyr Arg Ala Leu Leu Gln Gly
 50 55 60
 Ala Pro Asp Ala Met Glu Leu Arg Glu Leu Thr Pro Trp Ala Gly Arg
 65 70 75 80
 Pro Pro Gly Pro Arg Arg Arg Ala Gly Pro Arg Arg Arg Ala Arg
 85 90 95
 Ala Arg Leu Gly Ala Arg Pro Cys Gly Leu Arg Glu Leu Glu Val Arg
 100 105 110
 Val Ser Glu Leu Gly Leu Gly Tyr Ala Ser Asp Glu Thr Val Leu Phe
 115 120 125
 Arg Tyr Cys Ala Gly Ala Cys Glu Ala Ala Ala Arg Val Tyr Asp Leu
 130 135 140
 Gly Leu Arg Arg Leu Arg Gln Arg Arg Arg Leu Arg Arg Glu Arg Val
 145 150 155 160
 Arg Ala Gln Pro Cys Cys Arg Pro Thr Ala Tyr Glu Asp Glu Val Ser
 165 170 175
 Phe Leu Asp Ala His Ser Arg Tyr His Thr Val His Glu Leu Ser Ala
 180 185 190
 Arg Glu Cys Ala Cys Val
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<210> 18
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<400> 18
 Pro Met Val Leu His Leu Leu Leu Phe Leu Leu Leu Thr Pro Gln Gly
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 Gly His Ser Cys Gln Gly Leu Glu Leu Ala Arg Glu Leu Val Leu Ala
 20 25 30
 Lys Val Arg Ala Leu Phe Leu Asp Ala Leu Gly Pro Pro Ala Val Thr
 35 40 45
 Arg Glu Gly Gly Asp Pro Gly Val Arg Arg Leu Pro Arg Arg His Ala
 50 55 60
 Leu Gly Gly Phe Thr His Arg Gly Ser Glu Pro Glu Glu Glu Glu Asp
 65 70 75 80
 Val Ser Gln Ala Ile Leu Phe Pro Ala Thr Asp Ala Ser Cys Glu Asp
 85 90 95
 Lys Ser Ala Ala Arg Gly Leu Ala Gln Glu Ala Glu Glu Gly Leu Phe
 100 105 110
 Arg Tyr Met Phe Arg Pro Ser Gln His Thr Arg Ser Arg Gln Val Thr
 115 120 125
 Ser Ala Gln Leu Trp Phe His Thr Gly Leu Asp Arg Gln Gly Thr Ala
 130 135 140
 Ala Ser Asn Ser Ser Glu Pro Leu Leu Gly Leu Leu Ala Leu Ser Pro
 145 150 155 160
 Gly Gly Pro Val Ala Val Pro Met Ser Leu Gly His Ala Pro Pro His
 165 170 175
 Trp Ala Val Leu His Leu Ala Thr Ser Ala Leu Ser Leu Leu Thr His

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Glu	Lys	Val	Val	Asp	Ala	Arg	Lys	Ser	Thr	Trp	His	Val	Phe	Pro	Val
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Ser	Ser	Ser	Ile	Gln	Arg	Leu	Leu	Asp	Gln	Gly	Lys	Ser	Ser	Leu	Asp
225					230					235					240
Val	Arg	Ile	Ala	Cys	Glu	Gln	Cys	Gln	Glu	Ser	Gly	Ala	Ser	Leu	Val
				245					250					255	
Leu	Leu	Gly	Lys	Lys	Lys	Lys	Lys	Lys	Glu	Glu	Glu	Gly	Glu	Gly	Lys
			260						265				270		/
Lys	Gly	Gly	Gly	Glu	Gly	Gly	Ala	Gly	Ala	Asp	Glu	Glu	Lys	Glu	Gln
			275				280					285			
Ser	His	Arg	Pro	Phe	Leu	Met	Leu	Gln	Ala	Arg	Gln	Ser	Glu	Asp	His
290						295					300				
Pro	His	Arg	Arg	Arg	Arg	Arg	Gly	Leu	Glu	Cys	Asp	Gly	Lys	Val	Asn
305					310					315					320
Ile	Cys	Cys	Lys	Lys	Gln	Phe	Phe	Val	Ser	Phe	Lys	Asp	Ile	Gly	Trp
				325					330					335	
Asn	Asp	Trp	Ile	Ile	Ala	Pro	Ser	Gly	Tyr	His	Ala	Asn	Tyr	Cys	Glu
			340					345					350		
Gly	Glu	Cys	Pro	Ser	His	Ile	Ala	Gly	Thr	Ser	Gly	Ser	Ser	Leu	Ser
		355					360					365			
Phe	His	Ser	Thr	Val	Ile	Asn	His	Tyr	Arg	Met	Arg	Gly	His	Ser	Pro
370						375					380				
Phe	Ala	Asn	Leu	Lys	Ser	Cys	Cys	Val	Pro	Thr	Lys	Leu	Arg	Pro	Met
385					390					395					400
Ser	Met	Leu	Tyr	Tyr	Asp	Asp	Gly	Gln	Asn	Ile	Ile	Lys	Lys	Asp	Ile
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Gln	Asn	Met	Ile	Val	Glu	Glu	Cys	Gly	Cys	Ser					
			420					425							

<210> 20
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 <212> PRT
 <213> HOMO SAPIEN

<400> 20

Pro	Met	Asp	Gly	Leu	Pro	Gly	Arg	Ala	Leu	Gly	Ala	Ala	Cys	Leu	Leu
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Leu	Leu	Ala	Ala	Gly	Trp	Leu	Gly	Pro	Glu	Ala	Trp	Gly	Ser	Pro	Thr
			20					25					30		
Pro	Pro	Pro	Thr	Pro	Ala	Ala	Pro	Pro	Pro	Pro	Pro	Pro	Pro	Gly	Ser
		35					40					45			
Pro	Gly	Gly	Ser	Gln	Asp	Thr	Cys	Thr	Ser	Cys	Gly	Gly	Phe	Arg	Arg
50						55					60				
Pro	Glu	Glu	Leu	Gly	Arg	Val	Asp	Gly	Asp	Phe	Leu	Glu	Ala	Val	Lys
65					70					75					80
Arg	His	Ile	Leu	Ser	Arg	Leu	Gln	Met	Arg	Gly	Arg	Pro	Asn	Ile	Thr
				85					90					95	
His	Ala	Val	Pro	Lys	Ala	Ala	Met	Val	Thr	Ala	Leu	Arg	Lys	Leu	His
			100					105					110		
Ala	Gly	Lys	Val	Arg	Glu	Asp	Gly	Arg	Val	Glu	Ile	Pro	His	Leu	Asp
		115					120					125			
Gly	His	Ala	Ser	Pro	Gly	Ala	Asp	Gly	Gln	Glu	Arg	Val	Ser	Glu	Ile
130						135					140				
Ile	Ser	Phe	Ala	Glu	Thr	Asp	Gly	Leu	Ala	Ser	Ser	Arg	Val	Arg	Leu
145					150					155					160
Tyr	Phe	Phe	Ile	Ser	Asn	Glu	Gly	Asn	Gln	Asn	Leu	Phe	Val	Val	Gln

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Ala Gly Lys Val Arg Glu Asp Gly Arg Val Glu Ile Pro His Leu Asp
115 120 125
Gly His Ala Ser Pro Gly Ala Asp Gly Gln Glu Arg Val Ser Glu Ile
130 135 140
Ile Ser Phe Ala Glu Thr Asp Gly Leu Ala Ser Ser Arg Val Arg Leu
145 150 155 160
Tyr Phe Phe Ile Ser Asn Glu Gly Asn Gln Asn Leu Phe Val Val Gln
165 170 175
Ala Ser Leu Trp Leu Tyr Leu Lys Leu Leu Pro Tyr Val Leu Glu Lys
180 185 190
Gly Ser Arg Arg Lys Val Arg Val Lys Val Tyr Phe Gln Glu Gln Gly
195 200 205
His Gly Asp Arg Trp Asn Met Val Glu Lys Arg Val Asp Leu Lys Arg
210 215 220
Ser Gly Trp His Thr Phe Pro Leu Thr Glu Ala Ile Gln Ala Leu Phe
225 230 235 240
Glu Arg Gly Glu Arg Arg Leu Asn Leu Asp Val Gln Cys Asp Ser Cys
245 250 255
Gln Glu Leu Ala Val Val Pro Val Phe Val Asp Pro Gly Glu Glu Ser
260 265 270
His Arg Pro Phe Val Val Val Gln Ala Arg Leu Gly Asp Ser Arg His
275 280 285
Arg Ile Arg Lys Arg Gly Leu Glu Cys Asp Gly Arg Thr Asn Leu Cys
290 295 300
Cys Arg Gln Gln Phe Phe Ile Asp Phe Arg Leu Ile Gly Trp Asn Asp
305 310 315 320
Trp Ile Ile Ala Pro Thr Gly Tyr Tyr Gly Asn Tyr Cys Glu Gly Ser
325 330 335
Cys Pro Ala Tyr Leu Ala Gly Val Pro Gly Ser Ala Ser Ser Phe His
340 345 350
Thr Ala Val Val Asn Gln Tyr Arg Met Arg Gly Leu Asn Pro Gly Thr
355 360 365
Val Asn Ser Cys Cys Ile Pro Thr Lys Leu Ser Thr Met Ser Met Leu
370 375 380
Tyr Phe Asp Asp Glu Tyr Asn Ile Val Lys Arg Asp Val Pro Asn Met
385 390 395 400
Ile Val Glu Glu Cys Gly Cys Ala
405

<210> 23
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<213> HOMO SAPIEN

<400> 23
Pro Met Arg Asp Leu Pro Leu Thr Ser Leu Ala Leu Val Leu Ser Ala
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Leu Gly Ala Leu Leu Gly Thr Glu Ala Leu Arg Ala Glu Glu Pro Ala
20 25 30
Val Gly Thr Ser Gly Leu Ile Phe Arg Glu Asp Leu Asp Trp Pro Pro
35 40 45
Gly Ile Pro Gln Glu Pro Leu Cys Leu Val Ala Leu Gly Gly Asp Ser
50 55 60
Asn Gly Ser Ser Ser Pro Leu Arg Val Val Gly Ala Leu Ser Ala Tyr
65 70 75 80

Glu 85	Gln	Ala	Phe	Leu 85	Gly	Ala	Val	Gln 90	Arg	Ala	Arg	Trp	Gly	Pro 95	Arg
Asp 100	Leu	Ala	Thr 100	Phe	Gly	Val	Cys	Asn 105	Thr	Gly	Asp	Arg	Gln 110	Ala	Ala
Leu 115	Pro	Ser 115	Leu	Arg	Arg	Leu	Gly 120	Ala	Trp	Leu	Arg	Asp 125	Pro	Gly	Gly
Gln 130	Arg	Leu	Val	Val	Leu	His 135	Leu	Glu	Glu	Val	Thr 140	Trp	Glu	Pro	Thr
Pro 145	Ser	Leu	Arg	Phe	Gln	Glu 150	Pro	Pro	Pro	Gly 155	Gly	Ala	Gly	Pro	Pro
Glu 165	Leu	Ala	Leu	Leu	Val	Leu	Tyr	Pro	Gly 170	Pro	Gly	Pro	Glu	Val	Thr
Val 180	Thr	Arg	Ala	Gly	Leu	Pro	Gly 185	Ala	Gln	Ser	Leu	Cys 190	Pro	Ser	Arg
Asp 195	Thr	Arg	Tyr	Leu	Val	Leu	Ala 200	Val	Asp	Arg	Pro	Ala 205	Gly	Ala	Trp
Arg 210	Gly	Ser	Gly	Leu	Ala	Leu	Thr 215	Leu	Gln	Pro	Arg	Gly 220	Glu	Asp	Ser
Arg 225	Leu	Ser	Thr	Ala	Arg	Leu	Gln 230	Ala	Leu	Leu	Phe 235	Gly	Asp	Asp	His
Arg 245	Cys	Phe	Thr	Arg	Met	Thr	Pro	Ala	Leu	Leu	Leu	Leu	Pro	Arg	Ser
Glu 260	Pro	Ala	Pro	Leu	Pro	Ala	His 265	Gly	Gln	Leu	Asp	Thr 270	Val	Pro	Phe
Pro 275	Pro	Pro	Arg	Pro	Ser	Ala	Glu 280	Leu	Glu	Glu	Ser	Pro 285	Pro	Ser	Ala
Asp 290	Pro	Phe	Leu	Glu	Thr	Leu	Thr 295	Arg	Leu	Val	Arg	Ala 300	Leu	Arg	Val
Pro 305	Pro	Ala	Arg	Ala	Ser	Ala	Pro	Arg	Leu	Ala	Leu	Asp 315	Pro	Asp	Ala
Leu 325	Ala	Gly	Phe	Pro	Gln	Gly	Leu	Val	Asn	Leu	Ser	Asp 330	Pro	Ala	Ala
Leu 340	Glu	Arg	Leu	Leu	Asp	Gly	Glu	Glu	Pro	Leu	Leu	Leu	Leu	Leu	Arg
Pro 355	Thr	Ala	Ala	Thr	Thr	Gly	Asp 360	Pro	Ala	Pro	Leu	His 365	Asp	Pro	Thr
Ser 370	Ala	Pro	Trp	Ala	Thr	Ala	Leu	Ala	Arg	Arg	Val	Ala 380	Ala	Glu	Leu
Gln 385	Ala	Ala	Ala	Ala	Glu	Leu	Arg	Ser	Leu	Pro	Gly	Leu	Pro	Pro	Ala
Thr 405	Ala	Pro	Leu	Leu	Ala	Arg	Leu	Leu	Ala	Leu	Cys	Pro	Gly	Gly	Pro
Gly 420	Gly	Leu	Gly	Asp	Pro	Leu	Arg	Ala	Leu	Leu	Leu	Leu	Lys	Ala	Leu
Gln 435	Gly	Leu	Arg	Val	Glu	Trp	Arg	Gly	Arg	Asp	Pro	Arg	Gly	Pro	Gly
Arg 450	Ala	Gln	Arg	Ser	Ala	Gly	Ala	Thr	Ala	Ala	Asp	Gly	Pro	Cys	Ala
Leu 465	Arg	Glu	Leu	Ser	Val	Asp	Leu	Arg	Ala	Glu	Arg	Ser	Val	Leu	Ile
Pro 485	Glu	Thr	Tyr	Gln	Ala	Asn	Asn	Cys	Gln	Gly	Val	Cys	Gly	Trp	Pro
Gln 500	Ser	Asp	Arg	Asn	Pro	Arg	Tyr	Gly	Asn	His	Val	Val	Leu	Leu	Leu
Lys 515	Met	Gln	Ala	Arg	Gly	Ala	Ala	Leu	Ala	Arg	Pro	Pro	Cys	Cys	Val
Pro 520	Thr	Ala	Tyr	Ala	Gly	Lys	Leu	Leu	Ile	Ser	Leu	Ser	Glu	Glu	Arg

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Ile Ser Ala His His Val	Pro Asn Met Val	Ala Thr Glu Cys Gly Cys		
545	550	555	560	
Arg				

<210> 24
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 <212> PRT
 <213> HOMO SAPIEN

<400> 24

Pro Met Val Ala Gly Thr Arg Cys Leu Leu Ala Leu Leu Leu Pro Gln	
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Val Leu Leu Gly Gly Ala Ala Gly Leu Val Pro Glu Leu Gly Arg Arg	
20 25 30	
Lys Phe Ala Ala Ala Ser Ser Gly Arg Pro Ser Ser Gln Pro Ser Asp	
35 40 45	
Glu Val Leu Ser Glu Phe Glu Leu Arg Leu Leu Ser Met Phe Gly Leu	
50 55 60	
Lys Gln Arg Pro Thr Pro Ser Arg Asp Ala Val Val Pro Pro Tyr Met	
65 70 75 80	
Leu Asp Leu Tyr Arg Arg His Ser Gly Gln Pro Gly Ser Pro Ala Pro	
85 90 95	
Asp His Arg Leu Glu Arg Ala Ala Ser Arg Ala Asn Thr Val Arg Ser	
100 105 110	
Phe His His Glu Glu Ser Leu Glu Leu Pro Glu Thr Ser Gly Lys	
115 120 125	
Thr Thr Arg Arg Phe Phe Phe Asn Leu Ser Ser Ile Pro Thr Glu Glu	
130 135 140	
Phe Ile Thr Ser Ala Glu Leu Gln Val Phe Arg Glu Gln Met Gln Asp	
145 150 155 160	
Ala Leu Gly Asn Asn Ser Ser Phe His His Arg Ile Asn Ile Tyr Glu	
165 170 175	
Ile Ile Lys Pro Ala Thr Ala Asn Ser Lys Phe Pro Val Thr Arg Leu	
180 185 190	
Leu Asp Thr Arg Leu Val Asn Gln Asn Ala Ser Arg Trp Glu Ser Phe	
195 200 205	
Asp Val Thr Pro Ala Val Met Arg Trp Thr Ala Gln Gly His Ala Asn	
210 215 220	
His Gly Phe Val Val Glu Val Ala His Leu Glu Lys Gln Gly Val	
225 230 235 240	
Ser Lys Arg His Val Arg Ile Ser Arg Ser Leu His Gln Asp Glu His	
245 250 255	
Ser Trp Ser Gln Ile Arg Pro Leu Leu Val Thr Phe Gly His Asp Gly	
260 265 270	
Lys Gly His Pro Leu His Lys Arg Glu Lys Arg Gln Ala Lys His Lys	
275 280 285	
Gln Arg Lys Arg Leu Lys Ser Ser Cys Lys Arg His Pro Leu Tyr Val	
290 295 300	
Asp Phe Ser Asp Val Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly	
305 310 315 320	
Tyr His Ala Phe Tyr Cys His Gly Glu Cys Pro Phe Pro Leu Ala Asp	
325 330 335	
His Leu Asn Ser Thr Asn His Ala Ile Val Gln Thr Leu Val Asn Ser	
340 345 350	

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Val	Asn	Ser	Lys	Ile	Pro	Lys	Ala	Cys	Cys	Val	Pro	Thr	Glu	Leu	Ser
		355					360					365			
Ala	Ile	Ser	Met	Leu	Tyr	Leu	Asp	Glu	Asn	Glu	Lys	Val	Val	Leu	Lys
	370					375				380					
Asn	Tyr	Gln	Asp	Met	Val	Val	Glu	Gly	Cys	Gly	Cys	Arg			
385					390					395					

<210> 25
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 <213> HOMO SAPIEN

<400> 25															
Pro	Met	Ala	Gly	Ala	Ser	Arg	Leu	Leu	Phe	Leu	Trp	Leu	Gly	Cys	Phe
1				5					10					15	
Cys	Val	Ser	Leu	Ala	Gln	Gly	Glu	Arg	Pro	Lys	Pro	Pro	Phe	Pro	Glu
			20					25					30		
Leu	Arg	Lys	Ala	Val	Pro	Gly	Asp	Arg	Thr	Ala	Gly	Gly	Gly	Pro	Asp
		35					40					45			
Ser	Glu	Leu	Gln	Pro	Gln	Asp	Lys	Val	Ser	Glu	His	Met	Leu	Arg	Leu
	50					55					60				
Tyr	Asp	Arg	Tyr	Ser	Thr	Val	Gln	Ala	Ala	Arg	Thr	Pro	Gly	Ser	Leu
65					70					75					80
Glu	Gly	Gly	Ser	Gln	Pro	Trp	Arg	Pro	Arg	Leu	Leu	Arg	Glu	Gly	Asn
			85						90					95	
Thr	Val	Arg	Ser	Phe	Arg	Ala	Ala	Ala	Ala	Glu	Thr	Leu	Glu	Arg	Lys
			100					105					110		
Gly	Leu	Tyr	Ile	Phe	Asn	Leu	Thr	Ser	Leu	Thr	Lys	Ser	Glu	Asn	Ile
		115					120					125			
Leu	Ser	Ala	Thr	Leu	Tyr	Phe	Cys	Ile	Gly	Glu	Leu	Gly	Asn	Ile	Ser
	130					135					140				
Leu	Ser	Cys	Pro	Val	Ser	Gly	Gly	Cys	Ser	His	His	Ala	Gln	Arg	Lys
145					150					155					160
His	Ile	Gln	Ile	Asp	Leu	Ser	Ala	Trp	Thr	Leu	Lys	Phe	Ser	Arg	Asn
			165						170					175	
Gln	Ser	Gln	Leu	Leu	Gly	His	Leu	Ser	Val	Asp	Met	Ala	Lys	Ser	His
		180						185					190		
Arg	Asp	Ile	Met	Ser	Trp	Leu	Ser	Lys	Asp	Ile	Thr	Gln	Phe	Leu	Arg
	195					200						205			
Lys	Ala	Lys	Glu	Asn	Glu	Glu	Phe	Leu	Ile	Gly	Phe	Asn	Ile	Thr	Ser
	210					215					220				
Lys	Gly	Arg	Gln	Leu	Pro	Lys	Arg	Arg	Leu	Pro	Phe	Pro	Glu	Pro	Tyr
225					230					235					240
Ile	Leu	Val	Tyr	Ala	Asn	Asp	Ala	Ala	Ile	Ser	Glu	Pro	Glu	Ser	Val
			245						250					255	
Val	Ser	Ser	Leu	Gln	Gly	His	Arg	Asn	Phe	Pro	Thr	Gly	Thr	Val	Pro
		260						265					270		
Lys	Trp	Asp	Ser	His	Ile	Arg	Ala	Ala	Leu	Ser	Ile	Glu	Arg	Arg	Lys
	275						280					285			
Lys	Arg	Ser	Thr	Gly	Val	Leu	Leu	Pro	Leu	Gln	Asn	Asn	Glu	Leu	Pro
	290					295					300				
Gly	Ala	Glu	Tyr	Gln	Tyr	Lys	Lys	Asp	Glu	Val	Trp	Glu	Glu	Arg	Lys
305					310					315					320
Pro	Tyr	Lys	Thr	Leu	Gln	Ala	Gln	Ala	Pro	Glu	Lys	Ser	Lys	Asn	Lys
			325						330					335	
Lys	Lys	Gln	Arg	Lys	Gly	Pro	His	Arg	Lys	Ser	Gln	Thr	Leu	Gln	Phe

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[illegible]

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<210> 28
<211> 455
<212> PRT
<213> HOMO SAPIEN
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Trp	Ser	Cys	Trp	Val	Leu	Val	Gly	Tyr	Ala	Lys	Gly	Gly	Leu	Gly	Asp
			20					25					30		
Asn	His	Val	His	Ser	Ser	Phe	Ile	Tyr	Arg	Arg	Leu	Arg	Asn	His	Glu
		35					40					45			
Arg	Arg	Glu	Ile	Gln	Arg	Glu	Ile	Leu	Ser	Ile	Leu	Gly	Leu	Pro	His
		50				55					60				
Arg	Pro	Arg	Pro	Phe	Ser	Pro	Gly	Lys	Gln	Ala	Ser	Ser	Ala	Pro	Leu
65					70					75					80
Phe	Met	Leu	Asp	Leu	Tyr	Asn	Ala	Met	Thr	Asn	Glu	Glu	Asn	Pro	Glu
				85					90					95	
Glu	Ser	Glu	Tyr	Ser	Val	Arg	Ala	Ser	Leu	Ala	Glu	Glu	Thr	Arg	Gly
			100					105					110		
Ala	Arg	Lys	Gly	Tyr	Pro	Ala	Ser	Pro	Asn	Gly	Tyr	Pro	Arg	Arg	Ile
		115					120					125			
Gln	Leu	Ser	Arg	Thr	Thr	Pro	Leu	Thr	Thr	Gln	Ser	Pro	Pro	Leu	Ala
		130				135					140				

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Ser Leu His Asp Thr Asn Phe Leu Asn Asp Ala Asp Met Val Met Ser
145          150          155          160
Phe Val Asn Leu Val Glu Arg Asp Lys Asp Phe Ser His Gln Arg Arg
          165          170          175
His Tyr Lys Glu Phe Arg Phe Asp Leu Thr Gln Ile Pro His Gly Glu
          180          185          190
Ala Val Thr Ala Ala Glu Phe Arg Ile Tyr Lys Asp Arg Ser Asn Asn
          195          200          205
Arg Phe Glu Asn Glu Thr Ile Lys Ile Ser Ile Tyr Gln Ile Ile Lys
          210          215          220
Glu Tyr Thr Asn Arg Asp Ala Asp Leu Phe Leu Leu Asp Thr Arg Lys
          225          230          235          240
Ala Gln Ala Leu Asp Val Gly Trp Leu Val Phe Asp Ile Thr Val Thr
          245          250          255
Ser Asn His Trp Val Ile Asn Pro Gln Asn Asn Leu Gly Leu Gln Leu
          260          265          270
Cys Ala Glu Thr Gly Asp Gly Arg Ser Ile Asn Val Lys Ser Ala Gly
          275          280          285
Leu Val Gly Arg Gln Gly Pro Gln Ser Lys Gln Pro Phe Met Val Ala
          290          295          300
Phe Phe Lys Ala Ser Glu Val Leu Leu Arg Ser Val Arg Ala Ala Asn
          305          310          315          320
Lys Arg Lys Asn Gln Asn Arg Asn Lys Ser Ser Ser His Gln Asp Ser
          325          330          335
Ser Arg Met Ser Ser Val Gly Asp Tyr Asn Thr Ser Glu Gln Lys Gln
          340          345          350
Ala Cys Lys Lys His Glu Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp
          355          360          365
Gln Asp Trp Ile Ile Ala Pro Glu Gly Tyr Ala Ala Phe Tyr Cys Asp
          370          375          380
Gly Glu Cys Ser Phe Pro Leu Asn Ala His Met Asn Ala Thr Asn His
          385          390          395          400
Ala Ile Val Gln Thr Leu Val His Leu Met Phe Pro Asp His Val Pro
          405          410          415
Lys Pro Cys Cys Ala Pro Thr Lys Leu Asn Ala Ile Ser Val Leu Tyr
          420          425          430
Phe Asp Asp Ser Ser Asn Val Ile Leu Lys Lys Tyr Arg Asn Met Val
          435          440          445
Val Arg Ser Cys Gly Cys His
          450          455

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<210> 29
 <211> 112
 <212> PRT
 <213> HOMO SAPIEN

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<400> 29
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Arg Lys His Glu Leu Tyr Val Ser Phe Gln Asp Leu Gly Trp Gln Trp
          20      25      30
Ile Ile Ala Pro Lys Gly Tyr Ala Ala Asn Tyr Cys Asp Gly Glu Cys
          35      40      45
Ser Pro Pro Leu Asn His Thr Ala Asn His Ala Ile Val Gln Thr Leu
          50      55      60
Val His Leu Met Asn Pro Glu Tyr Val Pro Lys Pro Cys Cys Ala Pro

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65					70					75				80	
Thr	Lys	Leu	Asn	Ala	Ile	Ser	Val	Leu	Tyr	Phe	Asp	Asp	Asn	Ser	Asn
				85					90					95	
Val	Ile	Lys	Lys	Tyr	Arg	Asn	Met	Val	Val	Arg	Ala	Cys	Gly	Cys	His
			100					105					110		

<210> 30
 <211> 112
 <212> PRT
 <213> HOMO SAPIEN

<400> 30															
Pro	Ala	Asn	Val	Ala	Glu	Asn	Ser	Ser	Ser	Asp	Gln	Arg	Gln	Ala	Cys
1				5					10					15	
Lys	Lys	His	Glu	Leu	Tyr	Val	Ser	Phe	Arg	Asp	Leu	Gly	Trp	Gln	Trp
			20					25					30		
Ile	Ile	Ala	Pro	Glu	Gly	Tyr	Ala	Ala	Tyr	Tyr	Cys	Glu	Gly	Glu	Cys
		35					40					45			
Ala	Phe	Pro	Leu	Asn	Ser	Ala	Thr	Asn	His	Ala	Ile	Val	Gln	Thr	Leu
	50					55				60					
Val	His	Phe	Ile	Asn	Pro	Glu	Thr	Val	Pro	Lys	Pro	Cys	Cys	Ala	Pro
65					70				75					80	
Thr	Gln	Leu	Asn	Ala	Ile	Ser	Val	Leu	Tyr	Phe	Asp	Asp	Ser	Ser	Asn
			85						90					95	
Val	Ile	Lys	Lys	Tyr	Arg	Asn	Met	Val	Val	Arg	Ala	Cys	Gly	Cys	His
			100					105					110		

<210> 31
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Pro	Met	Thr	Ala	Leu	Pro	Gly	Pro	Leu	Trp	Leu	Leu	Gly	Leu	Ala	Leu
1				5					10					15	
Cys	Ala	Leu	Gly	Gly	Gly	Gly	Pro	Gly	Leu	Arg	Pro	Pro	Pro	Gly	Cys
			20					25					30		
Pro	Gln	Arg	Arg	Leu	Gly	Ala	Arg	Glu	Arg	Arg	Asp	Val	Gln	Arg	Glu
		35					40					45			
Ile	Leu	Ala	Val	Leu	Gly	Leu	Pro	Gly	Arg	Pro	Arg	Pro	Arg	Ala	Pro
	50					55				60					
Pro	Ala	Ala	Ser	Arg	Leu	Pro	Ala	Ser	Ala	Pro	Leu	Phe	Met	Leu	Asp
65					70				75					80	
Leu	Tyr	His	Ala	Met	Ala	Gly	Asp	Asp	Asp	Glu	Asp	Gly	Ala	Pro	Ala
				85					90					95	
Glu	Arg	Arg	Leu	Gly	Arg	Ala	Asp	Leu	Val	Met	Ser	Phe	Val	Asn	Met
			100					105					110		
Val	Glu	Arg	Asp	Arg	Ala	Leu	Gly	His	Gln	Glu	Pro	His	Trp	Lys	Glu
		115					120					125			
Phe	Arg	Phe	Asp	Leu	Thr	Gln	Ile	Pro	Ala	Gly	Glu	Ala	Val	Thr	Ala
	130					135					140				
Ala	Glu	Phe	Arg	Ile	Tyr	Lys	Val	Pro	Ser	Ile	His	Leu	Leu	Asn	Arg
145					150					155				160	
Thr	Leu	His	Val	Ser	Met	Phe	Gln	Val	Val	Gln	Glu	Gln	Ser	Asn	Arg
				165					170					175	

Trp Leu Ala Gly Leu Leu Trp Leu Pro Gly Ala Thr Val

Glu	Ser	Asp	Leu	Phe	Phe	Leu	Asp	Leu	Gln	Thr	Leu	Arg	Ala	Gly	Asp	
			180					185					190			
Glu	Gly	Trp	Leu	Val	Leu	Asp	Val	Thr	Ala	Ala	Ser	Asp	Cys	Trp	Leu	
		195				200						205				
Leu	Lys	Arg	His	Lys	Asp	Leu	Gly	Leu	Arg	Leu	Tyr	Val	Glu	Thr	Glu	
	210				215						220					
Asp	Gly	His	Ser	Val	Asp	Pro	Gly	Leu	Ala	Gly	Leu	Leu	Gly	Gln	Arg	
225					230					235					240	
Ala	Pro	Arg	Ser	Gln	Pro	Phe	Val	Val	Thr	Phe	Phe	Arg	Ala	Ser		
			245					250					255			
Pro	Ser	Pro	Ile	Arg	Thr	Pro	Arg	Ala	Val	Arg	Pro	Leu	Arg	Arg	Arg	
			260					265					270			
Gln	Pro	Lys	Lys	Ser	Asn	Glu	Leu	Pro	Gln	Ala	Asn	Arg	Leu	Pro	Gly	
		275				280						285				
Ile	Phe	Asp	Asp	Val	His	Gly	Ser	His	Gly	Arg	Gln	Val	Cys	Arg	Arg	
	290					295					300					
His	Glu	Leu	Tyr	Val	Ser	Phe	Gln	Asp	Leu	Gly	Trp	Leu	Asp	Trp	Val	
305					310					315					320	
Ile	Ala	Pro	Gln	Gly	Tyr	Ser	Ala	Tyr	Tyr	Cys	Glu	Gly	Glu	Cys	Ser	
			325					330					335			
Phe	Pro	Leu	Asp	Ser	Cys	Met	Asn	Ala	Thr	Asn	His	Ala	Ile	Leu	Gln	
			340					345					350			
Ser	Leu	Val	His	Leu	Met	Lys	Pro	Asn	Ala	Val	Pro	Lys	Ala	Cys	Cys	
		355					360					365				
Ala	Pro	Thr	Lys	Leu	Ser	Ala	Thr	Ser	Val	Leu	Tyr	Tyr	Asp	Ser	Ser	
	370					375					380					
Asn	Asn	Val	Ile	Leu	Arg	Lys	His	Arg	Asn	Met	Val	Val	Lys	Ala	Cys	
385					390				395						400	
Gly	Cys	His														

<210> 32
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 <213> HOMO SAPIEN

<400> 32

Pro	Met	Gly	Ser	Leu	Val	Leu	Thr	Leu	Cys	Ala	Leu	Phe	Cys	Leu	Ala	
1				5				10						15		
Ala	Tyr	Leu	Val	Ser	Gly	Ser	Pro	Ile	Met	Asn	Leu	Glu	Gln	Ser	Pro	
		20					25					30				
Leu	Glu	Glu	Asp	Met	Ser	Leu	Phe	Gly	Asp	Val	Phe	Ser	Glu	Gln	Asp	
		35				40					45					
Gly	Val	Asp	Phe	Asn	Thr	Leu	Gln	Ser	Met	Lys	Asp	Glu	Phe	Leu		
	50				55					60						
Lys	Thr	Leu	Asn	Leu	Ser	Asp	Ile	Pro	Thr	Gln	Asp	Ser	Ala	Lys	Val	
65				70					75					80		
Asp	Pro	Pro	Glu	Tyr	Met	Leu	Glu	Leu	Tyr	Asn	Lys	Phe	Ala	Thr	Asp	
			85					90					95			
Arg	Thr	Ser	Met	Pro	Ser	Ala	Asn	Ile	Ile	Arg	Ser	Phe	Lys	Asn	Glu	
			100				105					110				
Asp	Leu	Phe	Ser	Gln	Pro	Val	Ser	Phe	Asn	Gly	Leu	Arg	Lys	Tyr	Pro	
	115					120					125					
Leu	Leu	Phe	Asn	Val	Ser	Ile	Pro	His	His	Glu	Glu	Val	Ile	Met	Ala	
	130					135					140					
Glu	Leu	Arg	Leu	Tyr	Thr	Leu	Val	Gln	Arg	Asp	Arg	Met	Ile	Tyr	Asp	

85								90					95			
Arg	Leu	Val	Lys	Pro	Leu	Thr	Ser	Val	Ala	Arg	Pro	His	Arg	Gly	Thr	
			100				105						110			
Trp	His	Ile	Gln	Ile	Leu	Gly	Phe	Pro	Leu	Arg	Pro	Asn	Arg	Gly	Leu	
			115				120				125					
Tyr	Gln	Leu	Val	Arg	Ala	Thr	Val	Val	Tyr	Arg	His	His	Leu	Gln	Leu	
			130	135						140						
Thr	Arg	Phe	Asn	Leu	Ser	Cys	His	Val	Glu	Pro	Trp	Val	Gln	Lys	Asn	
145				150						155			160			
Pro	Thr	Asn	His	Phe	Pro	Ser	Ser	Glu	Gly	Asp	Ser	Ser	Lys	Pro	Ser	
			165						170			175				
Leu	Met	Ser	Asn	Ala	Trp	Lys	Glu	Met	Asp	Ile	Thr	Gln	Leu	Val	Gln	
			180			185						190				
Gln	Arg	Phe	Trp	Asn	Asn	Lys	Gly	His	Arg	Ile	Leu	Arg	Leu	Arg	Phe	
			195			200						205				
Met	Cys	Gln	Gln	Gln	Lys	Asp	Ser	Gly	Gly	Leu	Glu	Leu	Trp	His	Gly	
			210			215						220				
Thr	Ser	Ser	Leu	Asp	Ile	Ala	Phe	Leu	Leu	Leu	Tyr	Phe	Asn	Asp	Thr	
225				230						235			240			
His	Lys	Ser	Ile	Arg	Lys	Ala	Lys	Phe	Leu	Pro	Arg	Gly	Met	Glu	Glu	
			245						250			255				
Phe	Met	Glu	Arg	Glu	Ser	Leu	Leu	Arg	Arg	Thr	Arg	Gln	Ala	Asp	Gly	
			260			265						270				
Ile	Ser	Ala	Glu	Val	Thr	Ala	Ser	Ser	Ser	Lys	His	Ser	Gly	Pro	Glu	
			275			280						285				
Asn	Asn	Gln	Cys	Ser	Leu	His	Pro	Phe	Gln	Ile	Ser	Phe	Arg	Gln	Leu	
			290			295						300				
Gly	Trp	Asp	His	Trp	Ile	Ile	Ala	Pro	Pro	Phe	Tyr	Thr	Pro	Asn	Tyr	
305				310						315			320			
Cys	Lys	Gly	Thr	Cys	Leu	Arg	Val	Leu	Arg	Asp	Gly	Leu	Asn	Ser	Pro	
			325						330			335				
Asn	His	Ala	Ile	Ile	Gln	Asn	Leu	Ile	Asn	Gln	Leu	Val	Asp	Gln	Ser	
			340			345						350				
Val	Pro	Arg	Pro	Ser	Cys	Val	Pro	Tyr	Lys	Tyr	Val	Pro	Ile	Ser	Val	
			355			360						365				
Leu	Met	Ile	Glu	Ala	Asn	Gly	Ser	Ile	Leu	Tyr	Lys	Glu	Tyr	Glu	Gly	
			370			375						380				
Met	Ile	Ala	Glu	Ser	Cys	Thr	Cys	Arg								
385				390												

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Leu	Val	Ile	Met	Gly	Asp	Thr	Asp	Ser	Lys	Thr	Asp	Ser	Ser	Phe	Ile
			20					25					30		
Met	Asp	Ser	Asp	Pro	Arg	Arg	Cys	Met	Arg	His	His	Tyr	Val	Asp	Ser
		35					40					45			
Ile	Ser	His	Pro	Leu	Tyr	Lys	Cys	Ser	Ser	Lys	Met	Val	Leu	Leu	Ala
	50					55					60				
Arg	Cys	Glu	Gly	His	Cys	Ser	Gln	Ala	Ser	Arg	Ser	Glu	Pro	Leu	Val
65					70					75					80

				325					330					335			
Cys	Cys	Val	Pro	Ala	Arg	Leu	Ser	Pro	Ile	Ser	Val	Leu	Phe	Phe	Asp		
			340					345					350				
Asn	Ser	Asp	Asn	Val	Val	Leu	Arg	Gln	Tyr	Glu	Asp	Met	Val	Val	Asp		
		355					360					365					
Glu	Cys	Gly	Cys	Arg													
	370																

<210> 37
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 <212> PRT
 <213> HOMO SAPIEN

Pro	Met	Arg	Leu	Pro	Lys	Leu	Leu	Thr	Phe	Leu	Leu	Trp	Tyr	Leu	Ala		
1				5					10					15			
Trp	Leu	Asp	Leu	Glu	Phe	Ile	Cys	Thr	Val	Leu	Gly	Ala	Pro	Asp	Leu		
		20						25					30				
Gly	Gln	Arg	Pro	Gln	Gly	Ser	Arg	Pro	Gly	Leu	Ala	Lys	Ala	Glu	Ala		
		35					40					45					
Lys	Glu	Arg	Pro	Pro	Leu	Ala	Arg	Asn	Val	Phe	Arg	Pro	Gly	Gly	His		
	50					55					60						
Ser	Tyr	Gly	Gly	Gly	Ala	Thr	Asn	Ala	Asn	Ala	Arg	Ala	Lys	Gly	Gly		
65					70				75					80			
Thr	Gly	Gln	Thr	Gly	Gly	Leu	Thr	Gln	Pro	Lys	Lys	Asp	Glu	Pro	Lys		
			85					90					95				
Lys	Leu	Pro	Pro	Arg	Pro	Gly	Gly	Pro	Glu	Pro	Lys	Pro	Gly	His	Pro		
			100					105					110				
Pro	Gln	Thr	Arg	Gln	Ala	Thr	Ala	Arg	Thr	Val	Thr	Pro	Lys	Gly	Gln		
		115					120					125					
Leu	Pro	Gly	Gly	Lys	Ala	Pro	Pro	Lys	Ala	Gly	Ser	Val	Pro	Ser	Ser		
	130				135					140							
Phe	Leu	Leu	Lys	Lys	Ala	Arg	Glu	Pro	Gly	Pro	Pro	Arg	Glu	Pro	Lys		
145					150					155				160			
Glu	Pro	Phe	Arg	Pro	Pro	Pro	Ile	Thr	Pro	His	Glu	Tyr	Met	Leu	Ser		
				165				170					175				
Leu	Tyr	Arg	Thr	Leu	Ser	Asp	Ala	Asp	Arg	Lys	Gly	Gly	Asn	Ser	Ser		
		180						185					190				
Val	Lys	Leu	Glu	Ala	Gly	Leu	Ala	Asn	Thr	Ile	Thr	Ser	Phe	Ile	Asp		
	195					200						205					
Lys	Gly	Gln	Asp	Asp	Arg	Gly	Pro	Val	Val	Arg	Lys	Gln	Arg	Tyr	Val		
	210					215					220						
Phe	Asp	Ile	Ser	Ala	Leu	Glu	Lys	Asp	Gly	Leu	Leu	Gly	Ala	Glu	Leu		
225					230					235				240			
Arg	Ile	Leu	Arg	Lys	Lys	Pro	Ser	Asp	Thr	Ala	Lys	Pro	Ala	Val	Pro		
			245					250						255			
Arg	Ser	Arg	Arg	Ala	Ala	Gln	Leu	Lys	Leu	Ser	Ser	Cys	Pro	Ser	Gly		
		260						265					270				
Arg	Gln	Pro	Ala	Ala	Leu	Leu	Asp	Val	Arg	Ser	Val	Pro	Gly	Leu	Asp		
	275						280					285					
Gly	Ser	Gly	Trp	Glu	Val	Phe	Asp	Ile	Trp	Lys	Leu	Phe	Arg	Asn	Phe		
	290					295					300						
Lys	Asn	Ser	Ala	Gln	Leu	Cys	Leu	Glu	Leu	Glu	Ala	Trp	Glu	Arg	Gly		
305				310						315					320		
Arg	Thr	Val	Asp	Leu	Arg	Gly	Leu	Gly	Phe	Asp	Arg	Ala	Ala	Arg	Gln		
				325					330					335			

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Val	His	Glu	Lys	Ala	Leu	Phe	Leu	Val	Phe	Gly	Arg	Thr	Lys	Lys	Arg
			340					345					350		
Asp	Leu	Phe	Phe	Asn	Glu	Ile	Lys	Ala	Arg	Ser	Gly	Gln	Asp	Asp	Lys
		355					360					365			
Thr	Val	Tyr	Glu	Tyr	Leu	Phe	Ser	Gln	Arg	Arg	Lys	Arg	Arg	Ala	Pro
	370					375					380				
Ser	Ala	Thr	Arg	Gln	Gly	Lys	Arg	Pro	Ser	Lys	Asn	Leu	Lys	Ala	Arg
385					390					395					400
Cys	Ser	Arg	Lys	Ala	Leu	His	Val	Asn	Phe	Lys	Asp	Met	Gly	Trp	Asp
			405						410					415	
Asp	Trp	Ile	Ile	Ala	Pro	Leu	Glu	Tyr	Glu	Ala	Phe	His	Cys	Glu	Gly
		420					425						430		
Leu	Cys	Glu	Phe	Pro	Leu	Arg	Ser	His	Leu	Glu	Pro	Thr	Asn	His	Ala
	435						440					445			
Val	Ile	Gln	Thr	Leu	Met	Asn	Ser	Met	Asp	Pro	Glu	Ser	Thr	Pro	Pro
	450					455					460				
Thr	Cys	Cys	Val	Pro	Thr	Arg	Leu	Ser	Pro	Ile	Ser	Ile	Leu	Phe	Ile
465					470					475					480
Asp	Ser	Ala	Asn	Asn	Val	Val	Tyr	Lys	Gln	Tyr	Glu	Asp	Met	Val	Val
			485						490					495	
Glu	Ser	Cys	Gly	Cys	Arg										
			500												

<210> 38
 <211> 376
 <212> PRT
 <213> HOMO SAPIEN

<400>	38														
Pro	Met	Gln	Lys	Leu	Gln	Leu	Cys	Val	Tyr	Ile	Tyr	Leu	Phe	Met	Leu
1				5					10				15		
Ile	Val	Ala	Gly	Pro	Val	Asp	Leu	Asn	Glu	Asn	Ser	Glu	Gln	Lys	Glu
		20						25					30		
Asn	Val	Glu	Lys	Glu	Gly	Leu	Cys	Asn	Ala	Cys	Thr	Trp	Arg	Gln	Asn
		35					40					45			
Thr	Lys	Ser	Ser	Arg	Ile	Glu	Ala	Ile	Lys	Ile	Gln	Ile	Leu	Ser	Lys
	50					55					60				
Leu	Arg	Leu	Glu	Thr	Ala	Pro	Asn	Ile	Ser	Lys	Asp	Val	Ile	Arg	Gln
65					70					75					80
Leu	Leu	Pro	Lys	Ala	Pro	Pro	Leu	Arg	Glu	Leu	Ile	Asp	Gln	Tyr	Asp
			85						90					95	
Val	Gln	Arg	Asp	Asp	Ser	Ser	Asp	Gly	Ser	Leu	Glu	Asp	Asp	Asp	Tyr
		100						105					110		
His	Ala	Thr	Thr	Glu	Thr	Ile	Ile	Thr	Met	Pro	Thr	Glu	Ser	Asp	Phe
		115					120					125			
Leu	Met	Gln	Val	Asp	Gly	Lys	Pro	Lys	Cys	Cys	Phe	Phe	Lys	Phe	Ser
	130					135					140				
Ser	Lys	Ile	Gln	Tyr	Asn	Lys	Val	Val	Lys	Ala	Gln	Leu	Trp	Ile	Tyr
145					150					155					160
Leu	Arg	Pro	Val	Glu	Thr	Pro	Thr	Thr	Val	Phe	Val	Gln	Ile	Leu	Arg
				165					170					175	
Leu	Ile	Lys	Pro	Met	Lys	Asp	Gly	Thr	Arg	Tyr	Thr	Gly	Ile	Arg	Ser
		180						185					190		
Leu	Lys	Leu	Asp	Met	Asn	Pro	Gly	Thr	Gly	Ile	Trp	Gln	Ser	Ile	Asp
	195					200						205			
Val	Lys	Thr	Val	Leu	Gln	Asn	Trp	Leu	Lys	Gln	Pro	Glu	Ser	Asn	Leu

210		215		220
Gly Ile Glu Ile Lys Ala Leu Asp Glu Asn Gly His Asp Leu Ala Val				
225		230		235
Thr Phe Pro Gly Pro Gly Glu Asp Gly Leu Asn Pro Phe Leu Glu Val				
	245		250	255
Lys Val Thr Asp Thr Pro Lys Arg Ser Arg Arg Asp Phe Gly Leu Asp				
	260		265	270
Cys Asp Glu His Ser Thr Glu Ser Arg Cys Cys Arg Tyr Pro Leu Thr				
	275		280	285
Val Asp Phe Glu Ala Phe Gly Trp Asp Trp Ile Ile Ala Pro Lys Arg				
	290		295	300
Tyr Lys Ala Asn Tyr Cys Ser Gly Glu Cys Glu Phe Val Phe Leu Gln				
305		310		315
Lys Tyr Pro His Thr His Leu Val His Gln Ala Asn Pro Arg Gly Ser				
	325		330	335
Ala Gly Pro Cys Cys Thr Pro Thr Lys Met Ser Pro Ile Asn Met Leu				
	340		345	350
Tyr Phe Asn Gly Lys Glu Gln Ile Ile Tyr Gly Lys Ile Pro Ala Met				
	355		360	365
Val Val Asp Arg Cys Gly Cys Ser				
370		375		

<210> 39
 <211> 455
 <212> PRT
 <213> HOMO SAPIEN

<400> 39

Pro Met Ala Arg Pro Asn Lys Phe Leu Leu Trp Phe Cys Cys Phe Ala				
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Trp Leu Cys Phe Pro Ile Ser Leu Gly Ser Gln Ala Ser Gly Gly Glu				
	20		25	30
Ala Gln Ile Ala Ala Ser Ala Glu Leu Glu Ser Gly Ala Met Pro Trp				
	35		40	45
Ser Leu Leu Gln His Ile Asp Glu Arg Asp Arg Ala Gly Leu Leu Pro				
	50		55	60
Ala Leu Phe Lys Val Leu Ser Val Gly Arg Gly Gly Ser Pro Arg Leu				
65		70		75
Gln Pro Asp Ser Arg Ala Leu His Tyr Met Lys Lys Leu Tyr Lys Thr				
	85		90	95
Tyr Ala Thr Lys Glu Gly Ile Pro Lys Ser Asn Arg Ser His Leu Tyr				
	100		105	110
Asn Thr Val Arg Leu Phe Thr Pro Cys Thr Arg His Lys Gln Ala Pro				
	115		120	125
Gly Asp Gln Val Thr Gly Ile Leu Pro Ser Val Glu Leu Leu Phe Asn				
	130		135	140
Leu Asp Arg Ile Thr Thr Val Glu His Leu Leu Lys Ser Val Leu Leu				
145		150		155
Tyr Asn Ile Asn Asn Ser Val Ser Phe Ser Ser Ala Val Lys Cys Val				
	165		170	175
Cys Asn Leu Met Ile Lys Glu Pro Lys Ser Ser Ser Arg Thr Leu Gly				
	180		185	190
Arg Ala Pro Tyr Ser Phe Thr Phe Asn Ser Gln Phe Glu Phe Gly Lys				
	195		200	205
Lys His Lys Trp Ile Gln Ile Asp Val Thr Ser Leu Leu Gln Pro Leu				
	210		215	220

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Val	Ala	Ser	Asn	Lys	Arg	Ser	Ile	His	Met	Ser	Ile	Asn	Phe	Thr	Cys
225					230					235					240
Met	Lys	Asp	Gln	Leu	Glu	His	Pro	Ser	Ala	Gln	Asn	Gly	Leu	Phe	Asn
				245					250					255	
Met	Thr	Leu	Val	Ser	Pro	Ser	Leu	Ile	Leu	Tyr	Leu	Asn	Asp	Thr	Ser
			260					265					270		
Ala	Gln	Ala	Tyr	His	Ser	Trp	Tyr	Ser	Leu	His	Tyr	Lys	Arg	Arg	Pro
		275					280					285			
Ser	Gln	Gly	Pro	Asp	Gln	Glu	Arg	Ser	Leu	Ser	Ala	Tyr	Pro	Val	Gly
	290					295					300				
Glu	Glu	Ala	Ala	Glu	Asp	Gly	Arg	Ser	Ser	His	His	Arg	His	Arg	Arg
305					310					315					320
Gly	Gln	Glu	Thr	Val	Ser	Ser	Glu	Leu	Lys	Lys	Pro	Leu	Gly	Pro	Ala
				325					330					335	
Ser	Phe	Asn	Leu	Ser	Glu	Tyr	Phe	Arg	Gln	Phe	Leu	Leu	Pro	Gln	Asn
			340					345					350		
Glu	Cys	Glu	Leu	His	Asp	Phe	Arg	Leu	Ser	Phe	Ser	Gln	Leu	Lys	Trp
		355					360					365			
Asp	Asn	Trp	Ile	Val	Ala	Pro	His	Arg	Tyr	Asn	Pro	Arg	Tyr	Cys	Lys
	370					375					380				
Gly	Asp	Cys	Pro	Arg	Ala	Val	Gly	His	Arg	Tyr	Gly	Ser	Pro	Val	His
385					390					395					400
Thr	Met	Val	Gln	Asn	Ile	Ile	Tyr	Glu	Lys	Leu	Asp	Ser	Ser	Val	Pro
				405					410					415	
Arg	Pro	Ser	Cys	Val	Pro	Ala	Lys	Tyr	Ser	Pro	Leu	Ser	Val	Leu	Thr
			420					425					430		
Ile	Glu	Pro	Asp	Gly	Ser	Ile	Ala	Tyr	Lys	Glu	Tyr	Glu	Asp	Met	Ile
		435					440					445			
Ala	Thr	Lys	Cys	Thr	Cys	Arg									
	450					455									

<210> 40
 <211> 238
 <212> PRT
 <213> HOMO SAPIEN

<400> 40

Pro	Met	Pro	Gly	Leu	Ile	Ser	Ala	Arg	Gly	Gln	Pro	Leu	Leu	Glu	Val
1				5					10					15	
Leu	Pro	Pro	Gln	Ala	His	Leu	Gly	Ala	Leu	Phe	Leu	Pro	Glu	Ala	Pro
			20					25					30		
Leu	Gly	Leu	Ser	Ala	Gln	Pro	Ala	Leu	Trp	Pro	Thr	Leu	Ala	Ala	Leu
		35					40					45			
Ala	Leu	Leu	Ser	Ser	Val	Ala	Glu	Ala	Ser	Leu	Gly	Ser	Ala	Pro	Arg
	50					55					60				
Ser	Pro	Ala	Pro	Arg	Glu	Gly	Pro	Pro	Pro	Val	Leu	Ala	Ser	Pro	Ala
65					70					75					80
Gly	His	Leu	Pro	Gly	Gly	Arg	Thr	Ala	Arg	Trp	Cys	Ser	Gly	Arg	Ala
				85					90					95	
Arg	Arg	Pro	Pro	Pro	Gln	Pro	Ser	Arg	Pro	Ala	Pro	Pro	Pro	Pro	Ala
			100					105					110		
Pro	Pro	Ser	Ala	Leu	Pro	Arg	Gly	Gly	Arg	Ala	Ala	Arg	Ala	Gly	Gly
		115					120					125			
Pro	Gly	Ser	Arg	Ala	Arg	Ala	Gly	Ala	Arg	Gly	Cys	Arg	Leu	Arg	
	130					135				140					
Ser	Gln	Leu	Val	Pro	Val	Arg	Ala	Leu	Gly	Leu	Gly	His	Arg	Ser	Asp

145		150		155		160									
Glu	Leu	Val	Arg	Phe	Arg	Phe	Cys	Ser	Gly	Ser	Cys	Arg	Arg	Ala	Arg
				165					170					175	
Ser	Pro	His	Asp	Leu	Ser	Leu	Ala	Ser	Leu	Leu	Gly	Ala	Gly	Ala	Leu
			180					185					190		
Arg	Pro	Pro	Pro	Gly	Ser	Arg	Pro	Val	Ser	Gln	Pro	Cys	Cys	Arg	Pro
		195					200					205			
Thr	Arg	Tyr	Glu	Ala	Val	Ser	Phe	Met	Asp	Val	Asn	Ser	Thr	Trp	Arg
	210					215					220				
Thr	Val	Asp	Arg	Leu	Ser	Ala	Thr	Ala	Cys	Gly	Cys	Leu	Gly		
225					230					235					

<210> 41
 <211> 157
 <212> PRT
 <213> HOMO SAPIEN

<400> 41
Pro Met Ala Val Gly Lys Phe Leu Leu Gly Ser Leu Leu Leu Leu Ser
1 5 10 15
Leu Gln Leu Gly Gln Gly Trp Gly Pro Asp Ala Arg Gly Val Pro Val
20 25 30
Ala Asp Gly Glu Phe Ser Ser Glu Gln Val Ala Lys Ala Gly Gly Thr
35 40 45
Trp Leu Gly Thr His Arg Pro Leu Ala Arg Leu Arg Arg Ala Leu Ser
50 55 60
Gly Pro Cys Gln Leu Trp Ser Leu Thr Leu Ser Val Ala Glu Leu Gly
65 70 75 80
Leu Gly Tyr Ala Ser Glu Glu Lys Val Ile Phe Arg Tyr Cys Ala Gly
85 90 95
Ser Cys Pro Arg Gly Ala Arg Thr Gln His Gly Leu Ala Leu Ala Arg
100 105 110
Leu Gln Gly Gln Gly Arg Ala His Gly Gly Pro Cys Cys Arg Pro Thr
115 120 125
Arg Tyr Thr Asp Val Ala Phe Leu Asp Asp Arg His Arg Trp Gln Arg
130 135 140
Leu Pro Gln Leu Ser Ala Ala Ala Cys Gly Cys Gly Gly
145 150 155

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